J. B. S. HALDANE ON EUGENICS

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PROFESSOR HALDANE has thought and written much on evolution. His latest book* is recorded as the eighteenth to be published in the course of some thirty years. *Heredity and Politics*, *The Inequality of Man* and *Possible Worlds* have been among earlier titles. In most of these eighteen books the author has discussed eugenics.

Everything has a History, like several of its forerunners, consists of essays previously published in other journals, chiefly the *Daily Worker*. But the last essay, called *Human Evolution: Past and Future*, which will most interest readers of the EUGENICS REVIEW, differs in origin from the others, for it was delivered as a discourse at a conference on Genetics, Palæontology and Evolution held at Princeton University as part of a commemoration of its bicentenary. Unfortunately we are not told when. The essays are not dated.

But all are written with the lucidity, persuasiveness and charm which are familiar features of earlier writings; they exhibit, furthermore, the customary encyclopædic range and impressive learning; and they reflect that quality of imaginativeness which is the author's chief asset as a popular writer. With a unique didactic skill he can bring seemingly remote subjects near to his reader. He can unveil that which is recondite and abstruse, and can demonstrate how it makes contact with the ordinary man. A young adolescent recently remarked to me that Haldane was an "eye-opener." The term was used in a wholly underogatory sense to mean that the author had opened his eyes to things around him and had made him ask "Why have I not realized that before?"

The reader of the last essay of *Everything has a History* who has been duly impressed by what has gone before may feel that the claims of eugenics to be regarded as a serious subject are irremediably shattered. Such an impression, if received, is mainly produced by a weapon which, upon the minds of those who have been adequately prepared, no one can wield more effectively than Haldane—an aggressively modest nescience. The fact might perhaps be overlooked that the conference to which the author delivered this discourse was concerned with palæontology. Projected into the future, the time-scale of palæontology takes us forwards millions of years. In such a perspective, meek nescience is fitting. In earlier essays, particularly those assembled in the volume *Fact and Faith*, published in 1934 by the Thinker's Library, this weapon of derisive nescience was devastatingly employed as a form of counter-attack against religious dogma. None is better equipped by scientific attainments and literary skill to use against eugenics the same weapon, the derisory tones muted but none the less perceptible, than Haldane. In his authoritative voice, science proclaims nescience.

What then does Haldane say in this essay? In the first of eight headed sections we are reminded of some important dates which the study of radio-active minerals enables us to establish with about 10 per cent of error. They delimit the palæontological conspectus of the discourse. About 350 million years ago, our ancestors were fish; 270 million years ago, amphibians; 200 million, reptiles; and 70 million, mammals somewhat like shrews, we are told. The last 20 million years are more difficult to date, but the Pekin man (*Sinanthropus*) lived about half a million years ago. In a section of this essay headed "Controlled Evolution as an Ideal," Haldane contends that if this ideal were ignored our descendants half a million years hence might differ from us, for better or worse, about as much as we differ from the Pekin man. At present, we do not know how to control our evolution; but the power to

* *Everything has a History*. 1951. Allen & Unwin. 16s.

do so may be acquired, in which event changes might be speeded up a hundredfold, so that conditions otherwise expectable in 500,000 years might be attained in 5,000. This period is rather less than a thousand years longer than that which has elapsed since the first fixed and certain date in human history, namely that of a total eclipse of the sun which occurred in 2283 B.C. Five thousand years ago most men were savages, though there existed enclaves of civilization in Egypt and elsewhere. But for three reasons we should not be deterred by these wide perspectives from thinking ahead. Power, in the first place, is less likely to be abused if, before it is in our hands, we think about how to use it. " About 2,500 years ago, the prophet Isaiah got the idea that all the nations would be at peace. Isaiah's idea of universal peace was something like a Jewish world empire. *Ours is an association of friendly democracies*" (my italics). " Secondly," says Haldane, " we shall not get the required knowledge in a hurry. *Even now we can only do a little to alter the inborn capacities of the next generation* [my italics]. Let us begin to think about what sort of changes we want and criticize one another's ideas. . . ." Thirdly, something even more important may be discovered on the way. Columbus set out to find China, but discovered America instead.

Under the heading " Slow Development as a Major Evolutionary Trend " Haldane makes the same point that Dr. G. C. L. Bertram made in his Galton Lecture (1951), namely that a man takes longer to reach maturity than other mammals. His development is slower; he is " neotenic "—i.e. his youth stretches over a long period, and when adult he exhibits characteristics shown by related or ancestral forms when young. This neotenic tendency makes him the most plastic and educable of mammals, his behaviour patterns being less fixed by heredity. Man is also polymorphic (several human types breeding together in the same area) and polytypic (different types inhabiting different areas, for example white men in Europe, black in Africa).

A heading " Human Diversity Desirable " develops the argument that polymorphism (diversity) is valuable and should be encouraged. Galton expressed the same idea. In his words—" There are a vast number of conflicting ideals, of alternative characters, of incompatible civilizations; but all are wanted to give fullness and interest to life."

" The Political Implications of Human Diversity " (a heading) provokes a definition. " Liberty is the practical recognition of human polymorphism "; otherwise stated, it is tolerance of human diversity. We are polymorphic (diverse) " not only in our æsthetic but in our intellectual abilities." And " without postulating any overall superiority of one race to another, we may be fairly sure that *some desirable genotypes are commoner in one people than in others and that this difference is to some extent reflected in its cultural achievement*" (my italics). Polytypicism should, for the present, be preserved; but if tolerance widened and selective methods improved the need for it might disappear.

In a section entitled " The Evolution of the Meek," Haldane suggests that, in the last million years, man has become more cerebral, more neotenic and more polymorphic. These, he thinks, are desirable evolutionary trends. But no sooner is this said than the author beats a retreat into nescience. " How are we to achieve these ends? I do not know. We do not know in detail for what human characteristics we want to breed." A Martian zoologist knowing no more about evolution than we do, if asked at any time in the past to pick the most progressive vertebrate, would rarely have hit upon the right one. During the Permian period, our ancestors were probably large and progressive reptiles; but during the Jurassic and Cretaceous our forefathers, by this time mammals, were small, inconspicuous and unspecialized, thus substantiating words delivered in another context: " Blessed are the meek, for they shall inherit the earth."

A section entitled " Negative Eugenics " discourages the hope that abnormalities due to dominant genes, such as juvenile cataract, could be totally eliminated by preventing the reproduction of affected persons; for

similar harmful genes constantly reappear by mutation. Here negative eugenics would not extirpate an infirmity, though if continually applied it could reduce its incidence. Sex-linked abnormalities could also be somewhat reduced. Indeed, " we could cut down the incidence of a great many maladies to a large extent." But recessive genes would be more refractory. The author opposes sterilization, whether compulsory or voluntary, for carriers. Laws permitting voluntary sterilization are, he says, subject to gross abuse. After a further declaration of nescience, Haldane says : " We shall only do what is right if people realize that we have a *duty to beget and bear the best-endowed children*. . . . A prerequisite . . . is the *moralization of our sexual behaviour*—that is to say, making it subordinate to ideal ends, not to impulse on the one hand or superstition on the other " (my italics).

The author's final section, " Difficulties of Positive Eugenics," deals with values. " In many human societies those types which are most admired are bred out. The Middle Ages admired holiness and courage. The holy men and women were celibate, the courageous men killed one another. Our age admires money-making. The men who make most money have least children." Haldane does not know of a single rare and desirable gene whose frequency we could increase, though there is little doubt that such exist. Knowledge being as yet rudimentary, our best course is to encourage the mapping of the human chromosomes and the analysis of the psychological constitution of exceptionally gifted people. Haldane does not know what we are now selecting for; to mention but three possibilities, we may be favouring genes which make for high sexual activity, low intelligence or lack of susceptibility to propaganda. But despite his ignorance of current trends and his affirmed nescience as to values, Haldane gives us a picture of the " man of the future." " He would probably be regarded as a physical, mental and moral defective. As an adult, he would probably have great muscular skill but little muscular strength, a large head, fewer teeth than we have, and so on. He would develop very slowly, perhaps not learning to speak till five years of age, but continuing to learn up to maturity at the age of forty, and then living for several centuries. He would be more rational and less instinctive than we are, less subject to sexual and parental emotions, to rage on the one hand and so-called herd instincts on the other. His motivation would depend far more than ours on education. In his own society he would be a good citizen, in ours perhaps a criminal or a lunatic. He would be of high general intelligence by our standards, and most individuals would have some special aptitude developed to the degree which we call genius." Finally, our immediate task is the remodelling of human society rather than the refashioning of the human race, " though the two duties must and will go together."

An impression is received that the author's declarations of nescience, irreproachable in the dim vistas of palæontology, have been belied by the exercise of his imaginative powers. The unengaging picture of the weakly, large-headed, neotenic, cerebralized, apathic and largely edentulous man-of-the future is doubtless a salutary corrective of Nietzsche's vision of the superman as a pitiless, blond and warlike viking. Haldane's man-of-the-future is the product of his system of values (" I think that these are desirable evolutionary trends ") and presumably of his analysis of what human characteristics are in fact being selected for. The chilling mists of nescience are dissolved by the warmth of human likes, dislikes and hopes.

More important, there emerges from Haldane's text, though punctuated throughout by declarations of nescience, a fairly clear picture of the type of human being that he would like to see inhabiting the planet not half a million years hence but today. The quotations italicized above are finger-pointers to his preferences. The desirable, the eugenically valuable, human would be tolerant of his fellow beings in their unhindered diversities; he would be co-operative rather than combative; he would be educable, plastic and moralizable

in his sexual behaviour, and conscious of " a duty to beget and bear the best-endowed children possible " ; he would be moralizable also in his social and international behaviour, showing himself capable of living happily in a world where universal peace reigned. This would be a world consisting of an association of friendly democracies (rather than a Jewish, Hitlerian or other world empire) which recognized, encouraged and educated to the full each man's special gifts ; and he would be free from genetically caused disabilities. Haldane, moreover, recognizes that " we are polymorphic not only in our æsthetic but in our intellectual abilities " ; and he is " fairly sure that some desirable genotypes are commoner in one people than in others, and that this difference is to some extent reflected in its achievement." But these differences are not such as to produce an overall superiority of one race over another. What, we may ask, are the genotypes responsible for cultural achievement ? Haldane does not, in the context of the passage above quoted, specify. But other passages in the essay leave the reader in no doubt. Haldane refers to æsthetic and intellectual endowments. He is himself the possessor of an abnormally high congenital ability for mathematics. But he is also tone-deaf. He regards it as possible that his tone-deafness may be an advantage to society as well as to himself, for his time might otherwise have been devoted to music at the expense of science. It is thus clear that Haldane regards proficiency in the arts and in science as culturally valuable activities which are, in part at least, the outcome of inborn endowments, and that he would encourage the spread of their determining genes if he knew how to recognize them.

There is quite enough in this disjointedly avowed programme to justify the author in forthwith joining the *Eugenics Society*. Why then this façade of nescience, this parade of hostility ? There are perhaps two reasons, which I suggest with diffidence—disgust at Nazi practices and the past history of the *Eugenics Society*. Little need be said about the first, except perhaps that Haldane discerned earlier than some of us the inner implications and guiding principles of the Nazi philosophy, and, before 1939, himself fought in the Spanish civil war. Haldane's attitude to the past history of the *Eugenics Society* is expressed in the following passage taken from his *Possible Worlds* (1927) :

> " The Eugenics Education Society " [as the *Eugenics Society* was then called] " have doubtless done good work in persuading a certain number of intelligent people to have more children. They have also rightly urged lessened taxation of parents and children. But many of their members have coupled with this a clamour against measures designed to ameliorate the lot of the children of the poor at the expense of the rich. It is a curious policy to combat evils due to economic inequality by perpetuating that inequality."

Haldane can be readily forgiven for not having closely followed developments within the *Society* in recent years. But had he done so, he would have known that the clamour to which he objects ceased long ago. It has not, indeed, been heard since I became the *Society's* General Secretary in 1931 ; nor has it been sounded in the editorial columns of the EUGENICS REVIEW since 1934, when Maurice Newfield became Editor.

At the risk of appearing presumptuous, I now offer a suggestion which bears upon an evolutionary event which puzzles Haldane and which affects our interpretation of present-day eugenic values.

Haldane has drawn our attention to how, in the Permian, our ancestors seem to have been large and progressive reptiles, whereas 70 million years ago they were mammals something like shrews. How can we account for this transformation ? I suggest that it may be connected with periods of cold. Mammals and birds are descended from reptiles which as a class flourished in the Mesozoic. During this epoch there were high mountains which were doubtless populated by a fauna differing from that inhabiting the hot, luxuriant and marshy lowland. In the cold uplands, where food was scarce, survival value would come to attach to anatomical structures, physiological processes and psychological characteristics different from those which benefited the reptilian inhabitants, many of them large and formidable, of the lowlands. Changes in

anatomical structures would mainly affect the skin, protecting it against cold. The fur of mammals and the feathers of birds do this in a manner which has no equivalent among known reptiles, living or extinct. Physiological processes which protect against cold are those concerned in the maintenance of a constant body temperature. Mammals are more warm-blooded than reptiles, and birds than mammals. Psychological characteristics having a similar purpose are those which conduce to the protection of the young against cold and which favour their maintenance in harsh and inclement surroundings where food is scarce. Viviparousness and the development of facilities for feeding the young, after birth, from the body of the parent serve this purpose. So do the accompanying parental instincts, strongest in the female but capable of extending to the male. In birds oviparous habits are retained, but are effectively supplemented by nest-building and brooding habits powered by compelling instincts. These upland and highland progenitors of mammals and birds were probably small in size, food being scarce; they were probably vegetarian, insectivorous or omnivorous in diet. Descent to the lowlands spelt death in the jaws of formidable enemies. An inborn terror, surviving till today in many humans and some monkeys, of sinuous, scaly, coiling, elongated or serpentine shapes may then have acquired survival value. Such a fear would resemble a Jungian archetype.

The causes of the geologically sudden extinction of the many sub-classes of reptiles which flourished in fullest diversity during the Jurassic, Triassic and Chalk periods are unknown. Geological upheavals, germs of new disease, atmospheric and climatic changes have been suggested. The disappearance of marine animals, among them ammonites and aquatic reptiles, some of the last probably viviparous, is difficult to explain. The slow replacement of equable, torrid and humid conditions by a colder age, beginning with an alternation of longer and severer winters with still hot but shortening summers, and proceeding gradually to ice ages, may have played a part in exterminating the oviparous reptile, uninterested in eggs and young. The five sub-classes of reptiles surviving today are best represented in hot regions. In cold and temperate zones these fall into a winter sleep, and in hot climates there is often a summer sleep which comes to an end with the beginning of the rainy season.

Gradually our small and inoffensive protomammalian ancestors may have been forced down from the uplands to find the territories below cleared of the redoubtable enemies which, in earlier epochs, had made them untenable.

If there is any truth in these suppositions, we would, if adopting a palæontological conspectus, confer upon the instincts centring round the family—filial and parental instincts, each evoking, supplementing and satisfying the other—a greater importance than Haldane has allowed. They would, indeed, become central features of the theme of his chapter which deals with human evolution, past and future. If, by parental instincts and structures and by filial impulses and reflexes, our supposedly shrew-like ancestors were differentiated from reptiles 70 and more million years ago, we are entitled to assign to these characteristics an important rôle in the equipment of our descendants half a million years hence. Haldane sees his "man of the future" as (in his words) "less subject to sexual and parental emotions" than we. Many would agree about the sexual emotions but not about the parental. Our sexual instincts and overt sexual activities (I am not here referring to their sublimated forms) are excessive to the requirements of civilized man today. Hence the need for contraception. The parental instincts are rarely excessive. Periods of decadence have, in the past, been characterized by neglect of reproductive activities in response to what have been called "waves of hedonism." In the mammalian world excluding man, neglect of the parental activities causes prompt extinction. But with civilized man other sequences are possible. Lactation can be shortened or avoided altogether by artifices; and an elaborate system of foster-parentage

can be organized. Women differ as do animals in the strength of their maternal instincts and in the willingness with which they will forgo pleasures and make sacrifices on their children's behalf. The local authority can now provide means by which a sequence of misconceived children, whom the mother persistently neglects or abandons, can be reared to maturity. If a delight in children, conveniently called genophilia, is in part inborn, we are now providing (albeit in a small way) the means by which lack of this quality can be disseminated.

Social measures encouraging foster-parentage, if widely extended and continued over a long period, would permit of the survival of children in the absence of parental emotions in their parents, and might therefore weaken the race's equipment of these instincts. On the other hand, contraception is rapidly disconnecting sexual from parental emotions, thus conferring upon the desire for children a new importance in evolution. The future may see a simultaneous development of these two opposed processes, the first weakening, the second strengthening the values of the family. But there is one obvious way in which Haldane's men and women of the future, who seem to bear a resemblance to the Selenites of Well's *First Men in the Moon*, could quickly come to possess a lesser endowment of genophilia than ourselves. Indeed, Haldane may have had such a possibility in mind when he was delivering his discourse to the Americans. I refer to ectogenesis, a vivid description of which was contained in the fantasia * which established Haldane as a literary figure thirty years ago.

Haldane has suggested that our immediate task is to remodel human society rather than try to refashion the human race, " though the two duties must and will go together." Such a fusion of tasks is best accomplished by our taking as our standard of eugenic merit a performance test which is partly of a social and partly of a biological character. The following is a quotation from the *Eugenics Society's Statement of Objects :*

" The eugenically meritorious couple is the one which produces by design (*i.e.*, by planned parenthood) a healthy and happy family. To plan the births of a well-spaced family demands intelligence, foresight and restraint ; to produce families large enough for replacement implies a love of children and a sense of duty to a community which needs children ; to provide them with a good home requires the power to make a success of marriage and of life outside the home. All these are valuable qualities and their perpetuation should be encouraged.

Eugenists aim at replacing the present generation by children who are deliberately conceived in the full light of all known medical, social and genetic factors. They favour the planned against the unplanned family ; and they wish to see the community so organized that its best citizens will feel eager to give full expression to the instincts of parenthood. . . .

The effects of heredity and environment, of nature and nurture, are not easy to separate ; nearly always they are closely interwoven. The healthy and happy family perpetuates valuable inborn qualities ; it also reproduces the conditions in which these qualities can develop to the best advantage."

If these values are preserved and reinforced in man's evolutionary future, our distant descendants would be less macabre than Haldane depicts. They would be less likely than he suggests to strike us as criminals. The metamorphosis eventually realized in a new geological epoch would bear a closer resemblance than he has conveyed to the transformation we would like to see brought about tomorrow.

I have said nothing about the other sixty-two essays in this book. They range over a wide assortment of topics which have been classified under twelve general headings. These include geological, meteorological and astronomical subjects, a popular outline of zoology (most readable), examples of animal behaviour, evolution, and accounts of six great men. My enjoyment of these essays has been enhanced by an impression (which may be misleading) that they exhibit less political bias than their forerunners. They encourage the hope that later collections may altogether avoid this bias. Political innuendo and propaganda, which mix badly with science, have for many readers spoiled much of Haldane's popular writings, and they have undoubtedly impeded the general recognition of his true status as a thinker and teacher.

* *Daedalus*. 1924. Kegan Paul.